

Remarks

Review and reconsideration of this application are respectfully requested in view of the above amendments and the following discussion.

The Examiner's acknowledgment of the election of claims 1-14 and 19 by applicant for further prosecution in this application is appreciated.

The drawings are objected to as failing to comply with 37 CFR 1.84(p) (5) because they include reference signs 21, 23 and 46 which are not mentioned in the specification. In compliance with the Examiner's requirement, applicant has amended the specification at page 5, first full paragraph to include a brief discussion of reference sign 46. No new matter is included by the amendment. The reference signs 21 and 23 have been deleted from the drawing Fig. 1. Accordingly, the objection to the drawings can now be withdrawn.

Claims 8-13 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Claim 8 has been amended and it is believed that such claim now provides a proper limitation to claim 1. Claims 9-13 have been canceled. Accordingly, this objection can now be withdrawn.

Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 has been amended to comply with the Examiner's suggestion. Therefore, this rejection can now be withdrawn.

Claims 1-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Solomon ('128). The Examiner alleges that Solomon teaches a crosshead extrusion apparatus that corresponds to the instant apparatus, which includes an extrusion housing 16 having a tapered interior wall surface (Fig. 2), an extruder die head (Fig. 2) releasably connected to the housing by bolts 36.

an introduction port 37, 41 in the housing for introducing the molten material into the interior of the housing, a fixed center die module 42, 48 configured to slidably mate with the tapered interior wall surface of the housing, and means 44 for securing the fixed center die module 42, 48 in the housing. The housing includes at least one controllable temperature zone, particularly dual controllable temperature zones 34, 34 in the front of the housing. The fixed center die module 42, 48 is configured such that molten material in the housing is divided into four (actually four and counting to six) parts (Fig. 3) providing balanced flow of the material to the extruder die head (col. 3, lines 10-22). The fixed center die module includes a tubular member 48 having a uniform inner circumference along its longitudinal axis (Fig. 2) and a plurality of raised surfaces (Fig. 3) extending from and integral with the outer circumference of the tubular member 48, the plurality of raised surfaces exhibiting a frusto-conical configuration along the longitudinal axis and providing a plurality of passages between the plurality of raised surfaces such that the molten material is divided into equal parts during extrusion (col. 3, lines 10-22). The fixed center die module is configured such that the material is divided into two equal parts as it goes around the tubular member 48 from the introduction port 41, and then the two equal parts are subsequently divided into four (actually four and counting to six) equal parts (fig. 3). The configuration of the fixed center die module precludes the need for continuous die adjustment to achieve predetermined cross-section and uniform wall gauge of the product (col. 3, lines 39-59).

Applicant notes that Solomon is concerned with coating a flexible "strand" which is shown and described as having a rectangular shape of about 1/16 inch X 3/64 inch. The strand is used to form bobby pins and similar articles wherein the coating is permanent so that it resists separating from the strand. The coating has a thickness of about 0.001 to about 0.00055 inches.

The present invention involves and apparatus and method for manufacturing a tubular structure, specifically a high pressure hose for use in the automotive industry as a power steering hose.

With respect to the Examiner's comments concerning the Solomon patent, applicant

submits that the molten material of Solomon is directed through the extruder by rotational movement of a screw or plunger. The molten material is actually forced through a series of parallel holes in a breaker plate adjacent the end of extruder barrel for the specific purpose of converting the helical movement of the molten material to longitudinal flow.

Applicant disagrees with the Examiner's allegation that the fixed center die module of Solomon is configured such that the material is divided into two equal parts as it goes around the tubular member 48 from the introduction port 41, and then the two equal parts are subsequently divided into four (actually four and counting to six) equal parts holes are at right angles to a breaker plate. While the molten material of Solomon may be temporarily separated into a plurality of parts where the molten material is converted from a helical flow to a longitudinal flow, the material is not divided into two separate and equal portions nor does this separation take place in the die module. Figure 2 of Solomon is a cross-sectional view of the apparatus and clearly shows that the material is forced through a plurality of holes in the breaker plate, but that the material is then combined as it is forced through an annular opening around a solid extension. When the mass of molten material from the annular opening reaches the die module, it is directed, at a ninety-degree angle, towards the die head at which point, the molten material is separated into the six different paths as it is extruded as a coating onto the strand.

Contrary to the teaching of Solomon, the molten material in accordance with the present invention is delivered to the fixed center die module where the molten material is first divided into two separate and equal portions, and the two separate and equal portions are subsequently divided into four separate and equal portions. Applicant contends that not only is the present invention not anticipated by Solomon, but that the present invention where the molten material is, in a first stage divided into separate and equal portion and, in a second stage, the two separate and equal portions are divided into four separate and equal portions is not obvious from the teaching of Solomon. Accordingly, it is believed that this rejection should be withdrawn.

In view of the foregoing amendments and remarks, it is believed that this application is

now in condition for allowance and an early indication thereof is earnestly solicited.

Respectfully submitted,



J. Daniel Lykins

Reg. No. 27,354

Dayco Products, LLC  
1 Prestige Place  
Miamisburg, Ohio 45342  
Telephone No.: (937) 226-5725